

Remarks/Arguments:

This is a reply to the office action of June 9.

The non-elected claims, previously identified as “withdrawn” have been canceled without prejudice to the filing of a divisional application.

Independent claims 72, 101 and 105 have been identically amended by deleting the phrase “in order to deploy the balloon in all the radial directions”, to which the examiner objected as being unsupported. We note, however, that the specification does state that the balloon has an outer surface which is suitable “for applying an uniform pressure all around” at para. [0056]. The importance of the feature, which follows from the structure recited in the amended claims, is explained further below.

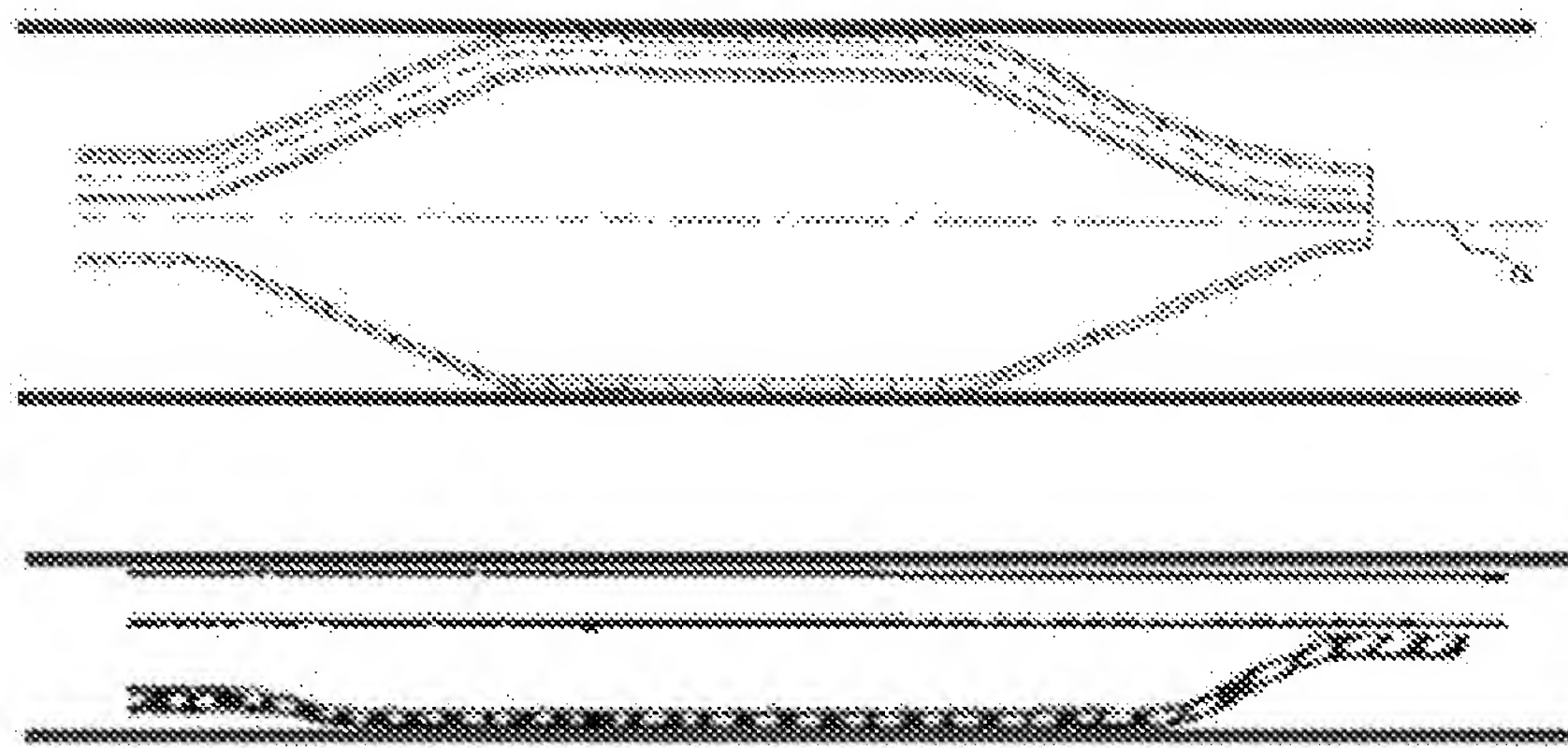
The independent claims has also been amended to avoid repetitive recitations of “an annular cross-section” and to avoid redundancy.

In evaluating Jang, the examiner stated “the wall cavity has the same outline as the balloon structure, however, they are not in face with each other.” We cannot respond to this point directly, because we are uncertain of the meaning of “in face” and neither Jang nor the present application seems to contain the phrase. If the idea is that the balloon of the present invention is symmetric, whereas Jang’s is not, we completely agree.

Comparing Figures 3 and 4 of the present application with Figures 1 and 6 of Jang, one can see that Jang does not disclose a cavity wall which follows the outline or profile of the balloon structure, in particular at the proximal and distal shanks; rather, Jang discloses a cavity that remains straight from the proximal portion to the distal

portion of the balloon. On the other hand, the balloon structure of the present invention has (when expanded) an outer surface of circular transverse cross-section

Present invention



Jang '634

The fact that the wall cavity follows the profile of the balloon, from end to end, makes the catheter easy to maneuver and guide in tortuous blood vessels. Moreover, the balloon, when inflated, automatically extends along the axis of the vessel, so the balloon is self-centering. A catheter which expands uniformly in all radial directions displaces or shifts the body vessel plaque uniformly, and applies a uniform pressure to the entire lesion area.

Jang's asymmetric catheter presents a preferred bending plane or a preferred bend direction. The asymmetric steering behavior of the Jang solution gives the operator greater difficulties in the phases of advancing the Jang catheter inside the body vessels. Moreover, Jang's balloon does not deploy uniformly all radial directions. Because Jang's balloon is not centered on the body's longitudinal axis, it expands preferentially in one radial direction (towards the bottom in the above figure). If it expands unevenly, a portion of the vessel wall may lacerate where the balloon's expansion is greatest, while on the opposite vessel wall a portion of the lesion

(the stenosis) may remain untreated.

For the above reasons, we believe that this invention is a meritorious improvement over the prior art, including Jang, and that claims 72, 101 and 105, and the claims which depend from them, are patentable over the prior art of record. Favorable reconsideration and allowance of this application are respectfully requested.

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